

Application No. 10/637,139
Amendment Dated November 2, 2005
Response to Office Action dated May 9, 2005

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A joint restraint assembly for connecting pipe ends together, or to other objects, by gripping the outer surface of the pipe, the joint restraint assembly comprising:

a body encircling the pipe, with said body having a plurality of cavities adjacent the pipe and at least one set of a corresponding plurality of threaded bores disposed through said body, each threaded bore of said at least one set of a corresponding plurality of threaded bores being in communication with a respective cavity; and

a segment disposed within each of said cavities in said body, said segment comprising a first portion that contacts a surface of said cavity and a second portion that penetrates the outer surface of the pipe, said segment pivoting about said first portion, which maintains contact with said surface of said cavity throughout increasing mechanical or internal pressure loading applied to the pipe, to drive for driving said second portion deeper into the outer surface of the pipe in proportion to the applied mechanical or internal pressure loading, said segment resisting pipe pull-out in proportion to the increased as the mechanical or internal pressure loading applied to the pipe increases.

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2. (Previously Presented) The joint restraint assembly of Claim 1 further comprising a threaded bolt extending through each of said threaded bores, said threaded bolt displacing said segment so that said second portion initially engages said outer surface of the pipe, and wherein said segment pivots about said first portion while losing contact with said threaded bolt.

3. (Previously Presented) The joint restraint assembly of Claim 1 wherein said segment transmits the load from the pipe to said body while loading said segment primarily in compression.

4. (Previously Presented) The joint restraint assembly of Claim 3 wherein said second portion comprises at least one edge which penetrates the outer surface of the pipe.

5. (Previously Presented) The joint restraint assembly of Claim 4 wherein said at least one edge forms a relief angle, as measured from the outer surface of the pipe, that is 25 to 35 degrees.

6. (Previously Presented) The joint restraint assembly of Claim 3 wherein the circumferential length of all of said segments and their edges comprises a substantial portion of the pipe periphery.

7. (Previously Presented) The joint restraint assembly of Claim 1 wherein the shape of the body is optimized to resist the forces imparted to it by contact with said segments, said body comprising:

a substantially cylindrical portion adjacent to the pipe surface with a flange extending radially therefrom; and

wherein said body comprises a shape and wall thickness that compensates for the presence of said cavities for maintaining the strength and rigidity of said body.

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8. (Original) The joint restraint assembly of Claim 1 further comprising an elastomeric material positioned between each of said segments and their corresponding cavities, said elastomeric material disposing said segment in said cavity in an optimum position for self-actuation or for retaining said segment in said cavity for shipping, handling and installation.

9. (Currently Amended) A joint restraint assembly for connecting pipe ends together, or to other objects, by gripping the outer surface of the pipe, the joint restraint assembly comprising:

a body encircling the pipe, with said body having a plurality of cavities adjacent the pipe and at least one set of a corresponding plurality of threaded bores disposed through said body, each threaded bore of said at least one set of a corresponding plurality of threaded bores being in communication with a respective cavity;

a segment disposed within each of said cavities in said body, said segment comprising a first portion that contacts a surface of said cavity and a cam surface that engages and rotates against, but does not substantially penetrate, the outer surface of the pipe, said segment pivoting about said first portion, which maintains contact with said surface of said cavity throughout increasing mechanical or internal pressure loading applied to the pipe so that said cam surface rotates against the outer surface of the pipe in proportion to the applied mechanical or internal pressure loading, said segment resisting pipe pull-out in proportion to the increased ~~as the~~ mechanical loading or internal pipe pressure increases.

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10. (Currently Amended) The joint restraint assembly of Claim 9 further comprising a threaded bolt extending through each of said threaded bores, said threaded bolt displacing said segment so that said cam surface initially engages said outer surface of the pipe, and wherein said segment pivots about said first portion while losing contact with said threaded bolt.

11. (Previously Presented) The joint restraint assembly of Claim 9 wherein said segment transmits the load from the pipe to said body while loading said segment primarily in compression.

12. (Previously Presented) The joint restraint assembly of Claim 9 wherein said cam surface further comprises a surface texture for engaging the pipe surface.

13. (Currently Amended) The joint restraint assembly of Claim 12 further comprising a threaded bolt extending through each of said threaded bores, said threaded bolt displacing said segment so that said cam surface initially engages said outer surface of the pipe, and wherein said segment pivots about said first portion while losing contact with said threaded bolt.

14. (Previously Presented) The joint restraint assembly of Claim 12 wherein said segment transmits the load from the pipe to said body while loading said segment primarily in compression.

Claims 15- 18 (Cancelled).

19. (Previously Presented) The joint restraint assembly of Claim 4 wherein said first portion comprises a corner opposite said at least one edge, said corner contacting said surface of said cavity.

20. (Previously Presented) The joint restraint assembly of Claim 9 wherein said first portion comprises a corner opposite said cam surface, said corner contacting said surface of said cavity.